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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/687,048	10/13/2000	Tae Heon Lee	AMKOR-052A	1120
7663	7590	10/04/2004	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER			NGUYEN, DILINH P	
75 ENTERPRISE, SUITE 250				
ALISO VIEJO, CA 92656			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/687,048

Applicant(s)

LEE ET AL.

Examiner

DiLinh Nguyen

Art Unit

2814

*Am*

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 16-32, 34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16, 17, 21-26, 30, 31, 34 and 35 is/are rejected.
- 7) ☒ Claim(s) 18-20, 27-29 and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/17/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 16-17, 21-26, 30-31 and 35 are rejected under 35 U.S.C. 102(b) as being  
Lin et al. by (U.S. Pat. 5200362).

Lin et al. disclose a semiconductor device comprising:

a leadframe having:

a chip paddle 13 defining opposed top and bottom surfaces and a plurality  
of sides and corners; and

a plurality of leads 13 extending along at least one of the sides of the chip  
paddle in spaced relation thereto, each of the leads defining opposed top and bottom  
surfaces, the bottom surfaces of the leads being of at least two different lengths;

a semiconductor chip 15 mounted to the top surface of the chip paddle and  
electrically connected to at least one of the leads; and

an encapsulation material 20 covering the leadframe and the semiconductor chip  
such that the bottom surfaces of the leads, which are of at least two different lengths,  
are exposed in the encapsulation material (fig. 4, column 3, lines 35-45).

- Regarding claim 17, Lin et al. discloses that wherein the leads are segregated into multiple sets which extend long respective ones of the sides of the chip paddle in spaced relation thereto (figs. 4 and 9).
- Regarding claim 21, Lin et al. disclose that the bottom surface of the chip paddle 13 is exposed in the encapsulation material 20 (fig. 4).
- Regarding claim 22, Lin et al. disclose that the encapsulation material 20 defines a generally planar bottom surface; and the bottom surface of the chip paddle is generally planar and substantially flush with the bottom surface of the encapsulation material; and the bottom surfaces of the leads are each generally planar and substantially flush with the bottom surface of the encapsulation material 20 (fig. 4).
- Regarding claim 25, Lin et al. disclose a semiconductor device comprising:  
a plurality of leads 13, each of the leads defining opposed top and bottom surfaces, the bottom surfaces of the leads being of at least two different lengths;  
a semiconductor chip 15 defining multiple sides and electrically connected to at least one of the leads; and  
an encapsulation material 20 covering the leads and the semiconductor chip such that the bottom surfaces of the leads, which are of at least two different lengths, are exposed in the encapsulation material 20 (fig. 4, column 3, lines 35-45).

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- Regarding claim 26, Lin et al. disclose that the leads are segregated into multiple sets which extend along respective ones of the sides of the semiconductor chip (figs. 4 and 9).
- Regarding claim 30, Lin et al. disclose that the encapsulation material 20 defines a generally planar bottom surface; and the bottom surfaces of the leads are each generally planar and substantially flush with the bottom surface of the encapsulation material (fig. 4).
- Regarding claim 31, Lin et al. disclose a semiconductor package comprising a plurality of leads 13 which each have a bottom surface which is exposed in an encapsulation material 20; and a semiconductor chip 15 which is covered by the encapsulation material and electrically connected to at least one of the leads, the improvement comprising: configuring the leads such that the leads include at least two outer leads 13 (the two outer leads) and at least one inner lead disposed between the outer leads, the bottom surface of each of the outer leads which is exposed in the encapsulation material is of a first length, and the bottom surface of the inner lead which is exposed in the encapsulation material is of a second length which is unequal to the first length (fig. 4, column 3, lines 35-45).
- Regarding claim 35, Lin et al. disclose that wherein the first length of the bottom surface of each of the outer leads is less than the second length of the bottom surface of the inner lead. (fig. 4).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 31 and 34 are rejected under 35 U.S.C. 102(e) as being Mostafazadeh et al. by (U.S. Pat. 6034423).

Mostafazadeh et al. disclose a semiconductor package comprising a plurality of leads which each have a bottom surface which is exposed in an encapsulation material; and a semiconductor chip 110 which is covered by the encapsulation material and electrically connected to at least one of the leads, the improvement comprising: configuring the leads such that the leads include at least two outer leads 220 and at least one inner lead disposed between the outer leads, the bottom surface of each of the outer leads which is exposed in the encapsulation material is of a first length, and the bottom surface of the inner lead which is exposed in the encapsulation material is of a second length which is unequal to the first length (fig. 2d-2, column 3, lines 25 et seq.).

- Regarding claim 34, Mostafazadeh et al. disclose that wherein the first length of the bottom surface of each of the outer leads exceeds the second length of the bottom surface of the inner lead (fig. 2d-2).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. by (U.S. Pat. 5200362) in view of Applicant Admitted Prior Art (AAPA, figs. 1 and 3).

Lin et al. substantially disclose all the limitations as claimed above except at least one tie bar attached to and extending from at least one of the corners of the chip paddle and wherein the bottom surface of the at least one tie bar is exposed in the encapsulation material.

AAPA (figs. 1 and 3) discloses that the lead frame 100 comprises at least one tie bar 150 attached to and extending from at least one of the corners of the chip paddle (fig. 3), the tie bar defining opposed top and bottom surfaces; and wherein the bottom surface of the at least one tie bar is exposed in the encapsulation material (fig. 3, page 3, lines 30-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device structure of Lin et al. by having the tie bar attached to and extending from at least one of the corner of the chip paddle with the structure as set forth above because as taught by AAPA, such the tie bar would provide the region for forming a connection part to connect the tie bar with the chip paddle thus providing a high reliability for the semiconductor package (figs. 1 and 3).

***Allowable Subject Matter***

Claims 18-20, 27-29 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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